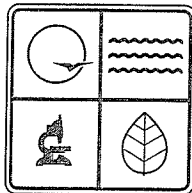


PERMIT BOOK

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI AIR CONSERVATION COMMISSION



PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: **06 2 006 - 001**

Project Number: 2006-03-053

Owner: Aquila, Inc.

Owner's Address: 20 West 9th Street, Kansas City, MO 64105

Installation Name: Aquila's Lake Road Generating Station

Installation Address: 1413 Lower Lake Road, St. Joseph, MO 64504

Location Information: Buchanan County, S30, T57N, R35W

Application for Authority to Construct was made for:

Installation of a 358 million British Thermal Units per hour (mmBTU/hr) dual-fired boiler. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

-
- ☐ Standard Conditions (on reverse) are applicable to this permit.
- ☒ Standard Conditions (on reverse) and Special Conditions (listed as attachments starting on page 2) are applicable to this permit.

JUN - 2 2006

EFFECTIVE DATE

Steven J. L. K.

DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

JK

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. Also, you must notify the Department of Natural Resources Regional Office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed Special Conditions as provided in RSMo 643.075. If you choose to appeal, the Air Pollution Control Program must receive your written declaration within 30 days of receipt of this permit.

If you choose not to appeal, this certificate, the project review, your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Department of Natural Resources has established the Outreach and Assistance Center to help in completing future applications or fielding complaints about the permitting process. You are invited to contact them at 1-800-361-4827 or (573) 526-6627, or in writing addressed to Outreach and Assistance Center, P.O. Box 176, Jefferson City, MO 65102-0176.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention Construction Permit Unit.

2006-03-053

Aquila, Inc.

20 West 9th Street, Kansas City, MO 64105

Aquila's Lake Road Generating Station

1413 Lower Lake Road, St. Joseph, MO 64504

Buchanan County, S30, T57N, R35W

Installation of a 358 million British Thermal Units per hour (mmBTU/hr) dual-fired boiler. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

Page No.	2
Permit No.	
Project No.	2006-03-053

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

Aquila's Lake Road Generating Station
Buchanan County, S30, T57N, R35W

1. Operational Limitations
Aquila's Lake Road Generating Station shall burn only natural gas or #2 fuel oil in the new dual-fired 358 MMBTU/hr boiler (EP-24).
2. Nitrogen Oxides (NO_x) and Carbon Monoxide (CO) Emission Limitations
 - A. Aquila's Lake Road Generating Station shall emit less than 40 tons of NO_x from the the dual-fired 358 MMBTU/hr boiler (EP-24) in any consecutive 12-month period.
 - B. Aquila's Lake Road Generating Station shall emit less than 100 tons of CO from the the dual-fired 358 MMBTU/hr boiler (EP-24) in any consecutive 12-month period.
 - C. Attachment A and B or equivalent forms approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Conditions 2.A and 2.B. Aquila's Lake Road Generating Station shall maintain all records required by this permit for not less than five (5) years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request. These records shall include Material Safety Data Sheets (MSDS) for the fuels combusted in the boiler.
 - D. Aquila's Lake Road Generating Station shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than ten (10) days after the end of the month during which the records from Special Condition Number 2.C indicate that the source exceeds the limitation of Special Conditions Number 2.A or 2.B.
3. #2 Fuel Oil Sulfur Content
The sulfur content of the fuel to be used in the dual-fired 358 MMBTU/hr boiler (EP-24) shall not exceed 0.05% by weight. Aquila's Lake Road Generating Station shall obtain the sulfur content of the fuel oil for each fuel oil delivery from the fuel vendors or conduct their own fuel analysis to evaluate the typical sulfur

Page No.	3
Permit No.	
Project No.	2006-03-053

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

content weight percent of the fuel oil. The fuel consumption records and statement shall be kept on-site for five (5) years and shall be made immediately available to the Missouri Department of Natural Resources' personnel upon request.

4. Stack Performance Testing

- A. Aquila's Lake Road Generating Station shall conduct stack performance testing on the boiler (EP-24) sufficient to quantify the emission rates of nitrogen oxides (NO_x) and carbon monoxide (CO) from this source when burning natural gas and when burning #2 fuel oil. These tests shall be done in accordance with the procedures outlined below.
- B. A completed Proposed Test Plan (form enclosed) must be submitted to the Air Pollution Control Program at least 30 days prior to the proposed test date so that a pretest meeting may be arranged, if necessary, and assure that the test date is acceptable for an observer to be present. The Proposed Test Plan must be approved by the Director prior to conducting the required emission testing.
- C. Within sixty (60) days of achieving the maximum production rate of the boiler (EP-24), and in any case, no later than 180 days after initial start-up, the owner/operator will have performed the required performance tests.
- D. Two (2) copies of a written report of the performance test results shall be submitted to the Director within 30 days of completion of any required testing. The report must include legible copies of the raw data sheets, analytical instrument laboratory data, and complete sample calculations from the required U.S. EPA Method for at least one (1) sample run.
- E. No later than 30 days after the performance test results are submitted, Aquila's Lake Road Generating Station shall provide the Director with a report that establishes the potential emissions of each air pollutant tested. This report shall report the potential emission rates in pounds per hour and the representative amount of fuel used per hour in order that the Air Pollution Control Program may verify the potential emissions and emission factors used in this boiler.
- F. Aquila's Lake Road Generating Station shall submit a revised construction permit application within sixty (60) days of the performance test reports submittal if the performance test indicates that the emissions measured during the stack test are actually higher than those estimated in this permit.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW

Project Number: 2006-03-053
Installation ID Number: 021-0004
Permit Number:

Aquila's Lake Road Generating Station
1413 Lower Lake Road,
St. Joseph, MO 64504

Complete: March 20, 2006
Reviewed: April 20, 2006

Parent Company:
Aquila, Inc.
20 West 9th Street
Kansas City, MO 64105

Buchanan County, S30, T57N, R35W

REVIEW SUMMARY

- Aquila's Lake Road Generating Station has applied for authority to install a 358 mmBTU/hr dual-fired boiler capable of burning natural gas and #2 fuel oil.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment in insignificant amounts due to the combustion of natural gas and #2 fuel oil.
- Subpart Db, *Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units* of the New Source Performance Standards (NSPS) applies to the new boiler. Subpart Da, *Standards of Performance for Electric Utility Steam Generating Units for Which Construction Is Commenced After September 18, 1978*, does not apply since this unit is not an electric steam generator and it will be connected exclusively to the low pressure header that serves a 10-megawatt turbine.
- The Maximum Achievable Control Technology (MACT) standard, 40 CFR Part 63, Subpart DDDDD, *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters*, does not apply to the proposed boiler since this boiler was manufactured prior to January 13, 2003, and has not been reconstructed.
- Flue gas recirculation is being used to control the NO_x emissions from the equipment in this permit.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of NO_x and CO are conditioned to de minimis levels.
- This installation is located in Buchanan County, an attainment area for all criteria air

pollutants.

- This installation is on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2] Number 24, *Fossil fuel boilers totaling more than 250 mmBTU/hr.*
- Ambient air quality modeling was not performed since potential emissions NO_x and CO are conditioned to de minimis levels.
- Emissions testing is required for the boiler (EP-24). Emissions testing may also be required for the equipment in accordance to NSPS Subpart Db.
- A revision to the Part 70 Operating Permit application is required for this installation within 1 year of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Aquila's Lake Road Generating Station is an existing major source of air pollution. It is located in St. Joseph, Missouri and currently houses seven (7) grandfathered boilers, four (4) steam driven turbines, two (2) peaking jet turbines and one (1) peaking combustion turbine.

A Part 70 application was submitted on February 27, 1997 to the Air Pollution Control Program.

The following permits have been issued to Aquila's Lake Road Generating Station from the Air Pollution Control Program.

Table 1: Previously Issued Construction Permits

Permit Number	Description
0389-003	Installation of a peaking turbine.
0689-002	Installation of a peaking turbine.
0190-009	Installation of a 21 MW oil-fired turbine.
0196-011	Construction of a fly-ash removal system which consists of new ash silos and all associated equipment and interconnections necessary between the ash silos and the precipitators.

PROJECT DESCRIPTION

Aquila Inc. is seeking authority to newly install a dual-fired boiler constructed in 1999 at Aquila's Lake Road Generating Station. The boiler is intended to provide steam to several local customers and will burn primarily natural gas with #2 fuel oil being used as a backup fuel. The total maximum hourly design rate of the boiler is 0.341 million cubic feet of natural gas per hour or 2.40 M (1,000) gallons of fuel oil per hour. Flue gas recirculation is being used to control NO_x emission from the boiler.

EMISSIONS/CONTROLS EVALUATION

The emission factors used in this analysis were obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 1.3, *Fuel Oil Combustion* (9/98), Section 1.4, *Natural Gas Combustion* (7/98), and vendor performance data. Specifically, the NO_x emission factor when burning natural gas and the NO_x and CO emission factor when burning #2 fuel oil were obtained from the vendor performance data. The vendor performance data takes into account reduction in NO_x due to flue gas recirculation. All other emission factors were derived from the AP-42 sections mentioned above. Although natural gas was indicated as the primary fuel, the boiler (EP-24) is capable of combusting both natural gas and fuel oil. The potential emissions of each type of fuel were determined and the highest rate for each criteria pollutant was used to determine the potential emissions of the boiler.

The existing potential emissions are taken from Permit Number 0499-015. Existing actual emissions were taken from the applicant's 2004 Emissions Inventory Questionnaire (EIQ) submittal. The following table provides an emissions summary for this project.

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2004 EIQ)	Potential Emissions of the Application	Project Conditioned Potential ¹
PM ₁₀	15.0	Major	35.39	34.79	N/D
SO _x	40.0	Major	2,987.2	85.77	N/D
NO _x	40.0	Major	3,262.4	103.32	<40
VOC	40.0	Major	26.9	8.21	N/D
CO	100.0	Major	148.1	176.07	<100
HAPs	10.0/25.0	Major	27.3	2.82	N/D

N/A = Not Applicable; N/D = Not Determined

Note 1: By limiting the NO_x and CO, all other pollutants are indirectly limited to below de minimis levels.

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of pollutants are conditioned to below de minimis levels.

APPLICABLE REQUIREMENTS

Aquila's Lake Road Generating Station shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete

list of applicable requirements for your installation, please consult your operating permit.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required April 1 for the previous year's emissions.
- *Operating Permits*, 10 CSR 10-6.065
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Odors*, 10 CSR 10-2.070

SPECIFIC REQUIREMENTS

- *New Source Performance Regulations*, 10 CSR 10-6.070 – *New Source Performance Standards (NSPS) for Industrial-Commercial-Institutional Steam Generating Units*, 40 CFR Part 60, Subpart Db

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

Susan Heckenkamp
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated March 10, 2006, received March 13, 2006,

designating Aquila, Inc. as the owner and operator of the installation.

- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Kansas City Regional Office Site Survey, dated March 27, 2006.

Attachment A – NO_x Compliance Worksheet for EP-24

Aquila's Lake Road Generating Station
 Buchanan County, S30, T57N, R35W
 Project Number: 2006-03-053
 Installation ID Number: 021-0004
 Permit Number:

This sheet covers the period from _____ to _____.
 (month, year) (month, year)

Copy as needed.

Fuel Used	Column A	Column B	Column C
	(a) Monthly Amount of Fuel Combusted (include units)	(b) NO _x Emission Factor (lbs/unit)	(c) Monthly NO _x Emissions (Tons)
(d) Total NO _x Emissions Calculated for this Month in Tons:			
(e) 12-Month NO _x Emissions Total from Previous Month's Attachment A, in Tons:			
(f) Monthly NO _x Emissions Total (d) from Previous Year's Attachment A, in Tons:			
(g) Current 12-month Total of NO _x Emissions in Tons: [(d) + (e) - (f)]			

- (a) Total amount of fuel combusted in boiler (EP-24). When combusting #2 fuel oil, report in Mgal; when combusting natural gas, report in MMCF.
- (b) Emission factor for NO_x will be determined from stack emissions test. In the interim, the appropriate emission factor from the following should be used:
- 1) When combusting #2 fuel oil in EP-24, use 9.8. lbs/Mgal;
 - 2) When combusting natural gas in EP-24, use 33.0 lbs/MMCF;
- (c) Column A x Column B x 0.0005.
- (d) Summation of [Column C] in Tons;
- (e) 12-Month NO_x emissions total (g) from last month's Attachment A, in Tons;
- (f) Monthly NO_x emissions total (d) from previous year's Attachment A, in Tons;
- (g) Calculate the new 12-month NO_x emissions total. **A 12-Month NO_x emissions total (g) of less than 40.0 tons indicates compliance.**

Attachment B - Compliance Worksheet for EP-24

Aquila's Lake Road Generating Station
Buchanan County, S30, T57N, R35W
Project Number: 2006-03-053
Installation ID Number: 021-0004
Permit Number:

This sheet covers the period from _____ to _____.
(month, year) (month, year)

Copy as needed.

Fuel Used	Column A	Column B	Column C
	(a) Monthly Amount of Fuel Combusted (include units)	(b) CO Emission Factor (lbs/unit)	(c) Monthly CO Emissions (Tons)
(d) Total CO Emissions Calculated for this Month in Tons:			
(e) 12-Month CO Emissions Total from Previous Month's Attachment B, in Tons:			
(f) Monthly CO Emissions Total (d) from Previous Year's Attachment B, in Tons:			
(g) Current 12-month Total of CO Emissions in Tons: [(d) + (e) - (f)]			

- (a) Total amount of fuel combusted in boiler (EP-24). When combusting #2 fuel oil, report in Mgal; when combusting natural gas, report in MMCF.
- (b) Emission factor for CO will be determined from stack emissions test. In the interim, the appropriate emission factor from the following should be used:
 - 1) When combusting #2 fuel oil in EP-24, use 16.7 lbs/Mgal;
 - 2) When combusting natural gas in EP-24, use 84.0 lbs/MMCF;
- (c) Column A x Column B x 0.0005;
- (d) Summation of [Column C] in Tons;
- (e) 12-Month CO emissions total (g) from last month's Attachment B, in Tons;
- (f) Monthly CO emissions total (d) from previous year's Attachment B, in Tons; and
- (g) Calculate the new 12-month CO emissions total. **A 12-Month CO emissions total (g) of less than 100.0 tons indicates compliance.**

Mr. Steve Brooks
Environmental Manager
Aquila's Lake Road Generating Station
1413 Lower Lake Road
St. Joseph, MO 64504

RE: New Source Review Permit - Project Number: 2006-03-053

Dear Mr. Brooks:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions, if any, on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files.

Operation in accordance with these conditions, your new source review permit application and with your revised operating permit is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions regarding this permit, please do not hesitate to contact me at (573) 751-4817, or you may write to me at the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102.

Thank you,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale
New Source Review Unit Chief

KBH:smhm

Enclosures

c: Kansas City Regional Office
PAMS File 2006-03-053

Permit Number: